shall be no smaller than ⅜ inch OD copper tubing or ¼ inch IPS. If No. 1 fuel oil is used with a listed automatic pump (fuel lifter), copper tubing shall be sized as specified by the pump manufacturer.

(d) *Joints for oil piping.* All pipe joints in the piping system, unless welded or brazed, shall be threaded joints which comply with ANSI/ASME B1.20.1–1983, Pipe Threads, General Purpose (Inch). The material used for brazing pipe connections shall have a melting temperature in excess of 1,000 F.

(e) *Joints for tubing.* Joints in tubing shall be made with either a single or double flare of the proper degree, as recommended by the tubing manufacturer, by means of listed tubing fittings, or brazed with materials having a melting point in excess of 1,000 F.

(f) *Pipe joint compound.* Threaded joints shall be made up tight with listed pipe joint compound which shall be applied to the male threads only.

(g) *Couplings.* Pipe couplings and unions shall be used to join sections of threaded pipe. Right and left nipples or couplings shall not be used.

(h) *Grade of piping.* Fuel oil piping installed in conjunction with gravity feed systems to oil heating equipment shall slope in a gradual rise upward from a central location to both the oil tank and the appliance in order to eliminate air locks.

(i) *Strap hangers.* All oil piping shall be adequately supported by galvanized or equivalently protected metal straps or hangers at intervals of not more than 4 feet, except where adequate support and protection is provided by structural members. Solid-iron-pipe oil supply connection(s) shall be rigidly anchored to a structural member within 6 inches of the supply connection(s).

(j) *Testing for leakage.* Before setting the system in operation, tank installations and piping shall be checked for oil leaks with fuel oil of the same grade that will be burned in the appliance. No other material shall be used for testing fuel oil tanks and piping. Tanks shall be filled to maximum capacity for the final check for oil leakage.

[40 FR 58752, Dec. 18, 1975. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 52 FR 4588, Feb. 12, 1987; 58 FR 55017, Oct. 25, 1993; 70 FR 72050, Nov. 30, 2005]

§ 3280.707 Heat producing appliances.

(a) Heat-producing appliances and vents, roof jacks and chimneys necessary for their installation in manufactured homes shall be listed or certified by a nationally recognized testing agency for use in manufactured homes.

(1) A manufactured home shall be provided with a comfort heating system.

(i) When a manufactured home is manufactured to contain a heating appliance, the heating appliance shall be installed by the manufacturer of the manufactured home in compliance with applicable sections of this subpart.

(ii) When a manufactured home is manufactured for field application of an external heating or combination heating/cooling appliance, preparation of the manufactured home for this external application shall comply with the applicable sections of this part.

(2) Gas and oil burning comfort heating appliances shall have a flue loss of not more than 25 percent, and a thermal efficiency of not less than that specified in nationally recognized standards (*See* § 3280.703).

(b) Fuel-burning heat-producing appliances and refrigeration appliances, except ranges and ovens, shall be of the vented type and vented to the outside.

(c) Fuel-burning appliances shall not be converted from one fuel to another fuel unless converted in accordance with the terms of their listing and the appliance manufacturer's instructions.

(d) *Performance efficiency.* (1) All automatic electric storage water heaters installed in manufactured homes shall have a standby loss not exceeding 43 watts/meter^2 (4 watts/ft^2) of tank surface area. The method of test for standby loss shall be as described in section 4.3.1 of Household Automatic Electric Storage Type Water Heaters, ANSI C72.1–1972.

(2) All gas and oil-fired automatic storage water heaters shall have a recovery efficiency, E, and a standby loss, S, as described below. The method of test of E and S shall be as described in section 2.7 of Gas Water heaters, Vol. I, Storage Water Heaters with Input/Ratings of 75,000 BTU per hour or less, ANSI Z21.10.1–1990, with addendums Z21.10.1a–1991 and Z21.10.1b–1992 except that for oil-fired units. CF=1.0, Q=total gallons of oil consumed and H=total heating value of oil in BTU/gallon.

Storage capacity in gallons	Recovery efficiency	Standby loss
Less than 25	At least 75 percent.	Not more than 7.5 percent.
25 up to 35 ..	00	Not more than 7 percent.
35 or more ...	00	Not more than 6 percent.

(e) Each space heating, cooling or combination heating and cooling system shall be provided with at least one readily adjustable automatic control for regulation of living space temperature. The control shall be placed a minimum of 3 feet from the vertical edge of the appliance compartment door. It shall not be located on an exterior wall or on a wall separating the appliance compartment from a habitable room.

(f) *Oil-fired heating equipment.* All oil-fired heating equipment must conform to Liquid Fuel-burning Heating Appliances for Manufactured Homes and Recreational Vehicles, UL 307A—1995, with 1997 revisions, and be installed in accordance with Standard for the Installation of Oil Burning Equipment, NFPA 31–1997. Regardless of the requirements of the above-referenced standards, or any other standards referenced in this part, the following are not required:

(1) External switches or remote controls which shut off the burner or the flow of oil to the burner, or

(2) An emergency disconnect switch to interrupt electric power to the equipment under conditions of excessive temperature.

[40 FR 58752, Dec. 17, 1975, as amended at 42 FR 54383, Oct. 5, 1977. Redesignated at 44 FR 20679, Apr. 6, 1979, as amended at 47 FR 49391, Nov. 1, 1982; 52 FR 4588, Feb. 12, 1987; 52 FR 47553, Dec. 15, 1987; 58 FR 55017, Oct. 25, 1993; 70 FR 72050, Nov. 30, 2005]

§ 3280.708 Exhaust duct system and provisions for the future installation of a clothes dryer.

(a) *Clothes dryers.* (1) All gas and electric clothes dryers shall be exhausted to the outside by a moisture-lint exhaust duct and termination fitting. When the clothes dryer is supplied by the manufacturer, the exhaust duct and termination fittings shall be completely installed by the manufacturer. However, if the exhaust duct system is subject to damage during transportation, it need not be completely installed at the factory when:

(i) The exhaust duct system is connected to the clothes dryer, and

(ii) A moisture lint exhaust duct system is roughed in and installation instructions are provided in accordance with paragraph (b)(3) or (c) of this section.

(2) A clothes dryer moisture-lint exhaust duct shall not be connected to any other duct, vent or chimney.

(3) The exhaust duct shall not terminate beneath the manufactured home.

(4) Moisture-lint exhaust ducts shall not be connected with sheet metal screws or other fastening devices which extend into the interior of the duct.

(5) Moisture-lint exhaust duct and termination fittings shall be installed in accordance with the appliance manufacturer's printed instructions.

(b) *Provisions for future installation of a gas clothes dryer.* A manufactured home may be provided with ''stubbed in'' equipment at the factory to supply a gas clothes dryer for future installation by the owner provided it complies with the following provisions:

(1) The ''stubbed in'' gas outlet shall be provided with a shutoff valve, the outlet of which is closed by threaded pipe plug or cap;

(2) The ''stubbed in'' gas outlet shall be permanently labeled to identify it for use only as the supply connection for a gas clothes dryer;

(3) A moisture lint duct system consisting of a complete access space (hole) through the wall or floor cavity with a cap or cover on the interior and exterior of the cavity secured in such a manner that they can be removed by a common household tool shall be provided. The cap or cover in place shall limit air infiltration and be designed to